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BOARD OF TRADE
RULES FOR FREEBOARD
1886

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Geo. A. McDermott

Consecutive Office No. 275 (*a*).
Departmental 1031.
Surveys 86 (*a*).

BOARD OF TRADE,
Marine Department,
January 1886.

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INSTRUCTIONS

TO

SURVEYORS

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Tables of Freeboard.

The Board of Trade have received the Report of the Load Line Committee, and of the tables and rules annexed thereto.

The Board of Trade accept the conclusions of that Committee as to load lines as shown in the Report and in the tables and rules; have approved thereof; and have furnished their Officers with copies. Copies can be obtained by the public at large from the agents for the sale of Stationery Office publications, and through any bookseller.

The Board of Trade do not propose that their Officers shall detain as overloaded any cargo ship on which the load line is marked so as to give the freeboard assigned to her by those rules and tables as approved by the Board, and which is not loaded beyond the limits prescribed therein.

As proof that the load line on a ship is marked in accordance with these rules and tables, the Board's staff at the outports will receive the certificate of Lloyd's Register Committee where a load line has been assigned by that Committee in accordance with the rules and tables as approved; or the certificate of the Board of Trade where a load line has been assigned by the Board of Trade. In future, the Board of Trade do not intend to assign a load line for any ship whether classed or unclassed.

The Board of Trade, in making this announcement desire to point out for the information of all persons having the command

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or management of ships, that those rules and tables give minimum freeboards applicable for ships of the highest class only, *and that no ships other than ships of the highest class are to be loaded so deeply as those rules and tables admit.*

Ships to which freeboards have been assigned by the Committee of Lloyd's Register, in accordance with the rules and tables as approved by the Board of Trade; or by the Board of Trade, will, like other ships, be liable to detention, if, having regard to the time of the year and the voyage, they are loaded more deeply than the rules and tables so approved admit, and ships to which freeboards are not assigned by authority will receive the particular notice of the staff so far as is possible.

It will of course be the duty of the Board itself in each case submitted to the Wreck Courts to instruct their Solicitor to raise the question of loading whenever it may appear that deep loading may have contributed to the loss of the ship, and it will also be the duty of the Board of Trade if in any such case it should hereafter appear that a ship was loaded more deeply than the rules and tables allow, looking to the age, character, class and employment of the ship, to make the owner and the person responsible for the loading of the ship parties to the case, and to ask for the opinion of the court on their conduct.

This edition contains notes indicating the construction to be put on certain passages in the report. These notes have been mutually agreed upon between the Committee of the Register Society and the Board of Trade, and have received the same formal approval of the Board of Trade as the report and the tables.

HENRY DE WORMS,
Secretary.

THOMAS GRAY,
Assistant Secretary.

Board of Trade,
Marine Department.

M. 1000.
1886.

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LOAD LINE COMMITTEE.

To His Grace the DUKE OF RICHMOND AND GORDON, K.G., &c.,
President of the Board of Trade.

MY LORD DUKE,

IN pursuance of the request of the late President of the Board of Trade (the Right Hon. Joseph Chamberlain, M.P.), we have given our most careful consideration to the following questions respecting the determination of the load lines of merchant ships, and have the honour to report thereon as follows:

The questions put to us were,—

"1. Whether it is now practicable to frame any general rules concerning freeboard which will prevent dangerous overloading without unduly interfering with trade.

"2. If so, whether any, and which of the existing tables, with any, and what alterations, or any other, and what tables should be adopted.

"3. How far any such tables can be adopted as fixed rules, and what amount of discretion must be left to the Officers who have to see that they are complied with."

Before replying to these questions we deemed it desirable (notwithstanding the close and technical acquaintance with merchant ships and with the conditions of safe loading which members of the Committee from their avocations necessarily possess) that we should together visit the principal mercantile ports, and there make joint observations of the load lines at present marked upon ships, and of the nature and extent of the actual loading practised. We also thought it well to avail ourselves of the opportunities thus afforded for conferring freely with shipowners, managers, masters, seamen, and others connected with the Mercantile Marine, and of receiving from them such evidence as they were willing to offer. We have likewise taken in London a considerable body of evidence. In order that your Grace may readily observe how numerous and how experienced have been the witnesses who have thus voluntarily contributed to the fulness of our information we append to this Report a list of their names.

Mr. Thomas Gray, C.B., and Sir Digby Murray, Bart., and likewise Mr. Benjamin Martell, and Mr. T. B. Royden have furnished all such information upon the subject as the large resources of the Board of Trade and of Lloyd's Register Office and of the Liverpool Registry respectively have enabled them to supply.

As the result of our prolonged consultations and labours we have unanimously arrived at the following replies to the questions before recited, viz.:

1. We are of opinion that it is now practicable to frame general rules concerning freeboard which will prevent dangerous overloading without unduly interfering with trade.

2. We have the pleasure to submit herewith tables which we consider should be adopted.

3. We are of opinion that these tables can be adopted, at least for all existing types of cargo vessels, and for some years to come, without the exercise of any other discretion on the part of the officers who have to see that they are complied with, than that which concerns the quality and condition of the ship. The freeboards assigned by the tables herewith are suitable for vessels of the highest class in Lloyd's Register or of strength equivalent thereto, and should be increased for ships of inferior strength.

To the responsible authorities a large discretion must be allowed, viz.: that of applying the tables themselves with reasonable modifications to any very exceptional vessels which may now exist or may hereafter be constructed.

For careful as we have been to give full consideration to all actual types and sizes of vessels, we cannot but admit that undue interference with trade might occasionally arise were the tables to be applied henceforth to all ships, present and future, without any exception whatever. We are well aware that the discretion which we thus regard as necessary is such as should be exercised with very great skill, care, and judgment, but we see no reason why those charged with the responsible duty of preventing the overloading of merchant ships should not have at their command all needful assistance.

The tables submitted herewith are of the same general form as those hitherto adopted by Lloyd's Register Office, and like them involve the reservation above water of a regulated minimum percentage of the total buoyancy. At the same time these tables secure that a sufficient height of deck above water to which the Board of Trade advisers have justly attached much importance. The views of the Board of Trade advisers concerning the value of forecastles, poops, and like deck erections, and the necessity for a liberal amount of freeboard in flush-deck vessels which are deprived of such erections, have likewise received our careful attention, and have had their due influence upon the tables submitted herewith. The same may be said with reference to the freeboards assigned to vessels of extreme proportions and to vessels of very fine forms. The Board of Trade distinction between winter and summer freeboards has likewise, after the fullest consideration, been adopted.

The tables as now submitted involve only such limited modifications of the freeboards assigned by the latest tables of Lloyd's Register Office as Mr. Benjamin Martell is able to freely accept and cordially concur with. The same may be said of the extension of the tabular forms by the addition thereto of corrections for changes of length and for voyages in summer and in the North Atlantic in winter.

In the tables submitted the definitions of length, breadth, depth, sheer, round of beam, and freeboard have undergone revision.

The changes introduced have been made for the purpose of simplifying the assignment and marking of freeboards, and although they modify in one or two points the directions of the fourth section of the Merchant Shipping Act of 1873, and may therefore render legislation necessary, the measure required would be of so brief, simple, and non-contentious a character as to render its passage easy.

It will be observed by the tables that they refer exclusively to cargo-carrying vessels. We have not considered it necessary to carry our investigations into the differences which may be made in the loading of passenger vessels. But it must be understood that under any circumstances those tables contain the maximum loading that should be permitted to any class of vessel.

In view of the unanimity with which we have arrived at our results it is deemed unnecessary to trouble your Grace with the evidence which has been taken, or with the information prepared and contributed by the various members of the Committee for its guidance from time to time.

In closing our labours which were commenced in January 1884, and have since proceeded continuously, we cannot but express our great satisfaction at the attainment of the unanimity just referred to. The subject placed before us by your Grace's predecessor was one of extreme complexity, and also one which had come to be regarded with much diversity of view (as was natural where the profit and loss of the largest commercial operations ever carried on upon the sea are involved), and therefore it would not have been surprising if we had failed to arrive at conclusions which we could all accept. But by thoroughly considering every important point as it has arisen, and by making reasonable concessions to each other on matters of opinion, we have succeeded in arriving unanimously at our results. As the Board of Trade, Lloyd's Register Office, and the Liverpool Registry are all represented upon this Committee the importance of this concurrence will be manifest. We have the honour to be, my Lord Duke, your Grace's obedient Servants, (Signed) E. J. REED, Chairman, W. DENNY, ROBT. DUNCAN, JAMES DUNN, FRANS. ELGAR, THOMAS GRAY, WILLIAM GRAY, JAMES LAING, B. MARTELL, DIGBY MURRAY, T. B. ROYDEN, THO. SUTHERLAND.

(Signed) REGINALD BINGHAM,
Secretary.

EXPLANATION of the following TABLES of FREEBOARD for the various TYPES of STEAM and SAILING VESSELS.

In the following Tables the word Freeboard denotes the height of the side of a ship above the waterline at the middle of her length, measured from the top of the deck at the side, or, in cases where a waterway is fitted, from the curved line of the top of the deck continued through to the side. The freeboards and the corresponding percentages of reserve buoyancy necessary for flush-deck steamers not having spar or awning decks, for awning-deck steamers, and for flush-deck sailing vessels, are given in Tables A, C, and D for vessels of these classes and of various dimensions and proportions. The freeboards necessary for spar-deck steamers are given in Tables B. The latter are determined by considerations of structural strength, and they denote the limitations to depth of loading which are thereby imposed upon first class vessels of this type. The freeboards and percentages of reserve buoyancy thus obtained being in excess of what would otherwise be required, the amounts of such percentages are not given in Tables B.

The exact freeboard required for a given ship belonging to any of the classes comprised in Tables A, C, and D, may be calculated by constructing a displacement scale to the height of the deck to which the freeboard is measured, so as to give the whole external volume up to the upper surface of that deck. The percentage of the total volume which is given in the Tables as the reserve buoyancy for a vessel of given type and dimensions will be the amount of volume that must be left out of the water. If a waterline be drawn upon the displacement scale aforesaid to cut off the given percentage of total volume, the height of side above this line will be the freeboard required.

In order to simplify and reduce the work that would be involved by the above mode of determining the water line and the consequent freeboard, that correspond to a given percentage of reserve buoyancy, an approximate method is adopted in the following tables, which enables the freeboard of a vessel to be calculated with a sufficient degree of accuracy for all ordinary working purposes. The use of this method not only saves the time and labour that would be involved by making a complete displacement scale for the whole external volume of a ship, but, what is much more important, it makes the Tables easily and directly applicable in cases where such a displacement scale for a vessel is not at hand, or where the data requisite for constructing one is not procurable.

In this approximate method the form of the ship is taken into account by means of proportionate quantities, which are termed coefficients of fineness, instead of by the exact volumes that a displacement scale would give. It is found that the whole internal volume of a ship as measured for register tonnage divided by the product of the length, breadth, and depth, measured as described in the following clauses 1, 2, and 3, gives a fractional quantity or coefficient which bears a nearly constant relation to the quantity that would be obtained by dividing the whole external volume below the upper surface of the deck by the product of the length, breadth, and depth. This fractional quantity is called the "coefficient of fineness" for freeboard purposes; and it serves the same practical object, when combined with the dimensions of the ship in the manner explained in the Tables, as the volume itself would do.

In applying such an approximate method as the above, it is necessary to connect the coefficients of fineness given in the Tables with a standard sheer and round of beam. The standard scales for sheer and round of beam that have been adapted for this purpose are given in clauses 16 and 17 hereafter. Descriptions are also there given of the corrections that should be made for deviations from these standard amounts.

The freeboards given in the Tables are for flush-deck vessels in all cases. Such reductions in freeboard as may be allowed for deck-erections of various kinds and sizes in steamers not having spar or awning decks, and in sailing vessels, are described in paragraphs 11, 12, 13, 14, and 15.

No reduction of freeboard should be allowed on account of deck-erections in spar-deck and awning-deck steamers.

Tables A and D give the minimum freeboards for first class iron and steel vessels, the strength of which is at least equal to the requirements of the 100A class in Lloyd's Register for three-deck and smaller vessels. The freeboard of all other iron and steel vessels, classed or unclassed, should be regulated by the same standard; the increase of freeboard required in each case being determined by the limit at which the stress per square inch upon the material of the hull amidships shall not exceed that of the standard class, of the same proportions, form, and moulded depth, when loaded to the freeboards required by Tables A and D. Tables B and C give the freeboards for vessels built in accordance with, or equal to the requirements of Lloyd's Register for the spar and awning deck classes; and are subject to the conditions just stated for any modifications of strength in excess or diminution of the requirements of their respective classes.

1. *Length.*—The length of the vessel is measured on the load-line from the foreside of the stem to the aft side of the stern post in sailing vessels, and to the aft side of the after post in steamers.*

2. *Breadth.*—The breadth used in obtaining the coefficient of fineness is the extreme breadth measured to the outside of plank or plating as given in the Register Book, or on the Certificate of the Ship's Registry.

3. *Depth of Hold.*—The depth used in obtaining the coefficient of fineness is the depth of hold as given in the Register Book, or on the Certificate of the Ship's Registry. This dimension is subject to modification in determining the coefficient of fineness as explained in clause 4.

4. *Coefficient of Fineness.*—The coefficient of fineness in one, two, and three-deck and spar-deck vessels, is found by dividing 100 times the gross registered tonnage of the vessel below the upper deck by the product of the length, breadth, and depth of hold. In awning-deck vessels the registered depth and tonnage are taken below the main deck.

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* *Page 9, para. 1, is to be read with the following additional words, viz.* :—

1. *Length.*—The length of erections is to be measured with reference to the length of the vessel on the load-line, *i.e.*, any portion of the erections forward of the fore side of the stem on the load-line, or abaft the after side of the after post on the load-line, is not to be measured for deductions.

(*a.*) It is of importance in the application of the rules and tables of freeboard that the coefficient of fineness deduced from the under-deck tonnage, and the principal dimensions should be a correct index to the vessel's relative fulness of form, and that a change in any of those elements which affect the coefficient, determined in accordance with the rule set forth should be considered, and the necessary correction, having regard to the special circumstances of the case, introduced. Among the cases that have from time to time come under notice are the following:—

(*b.*) *Vessel having a cellular bottom throughout, or floors of greater depth than those usually fitted.*—In such a case the coefficient as determined from the under-deck tonnage is in most instances slightly greater than it would be if the vessel were framed on the ordinary transverse system with floors of the usual depth. No general rule can be given for guidance, but it is not difficult, if the depth and slope of the top of the cellular bottom or floor be compared on the midship section with the depth and slope of an ordinary floor, to determine very closely the amount of the correction necessary.

(*c.*) *Vessel constructed with floors of the ordinary kind, but with a cellular bottom for a part of the length amidships under the engines and boilers.*—In such a case the registered under-deck tonnage is smaller than it would be if the vessel were framed with ordinary floors throughout, the difference being the tonnage of the space between the top of the cellular bottom in the part amidships, and the level of the ordinary floor. The depth of hold is also measured by the customs officials to the top of the cellular bottom, and this depth is inserted in the register. Under such circumstances, in order to arrive at the coefficient of fineness the vessel would have if built on the ordinary system throughout, and for which the tables are framed, the tonnage of the volume between the top of the cellular bottom and the level of the ordinary floor should be calculated and added to the registered under-deck tonnage. The tonnage so corrected used in conjunction with the depth of hold to the top of the ordinary floor, gives the coefficient to be used in the Tables.

(*d.*) *Vessel constructed with a cellular bottom throughout the fore and after holds, but with floors of the ordinary kind fitted for a part of the length amidships under the engines and boilers.*—In such a case the tonnage of the space between the top of the ordinary floors in the part amidships, and the top of the cellular bottom, if made continuous, should be estimated, and deducted from the registered under-deck tonnage, and the remainder employed in conjunction with the depth of hold to the top of the cellular bottom in determining the coefficient of fineness.

(*e.*) Other cases may in practice arise in which the registered under-deck tonnage, or the registered depth of hold, or both, require modification before being used in the determination of the coefficient of fineness, but little difficulty will be experienced in making the necessary correction, if it be remembered that the coefficient sought is the coefficient the vessel would have if framed on the ordinary transverse system.

5. *Moulded Depth.*—The moulded depth of an iron or steel vessel, as given in the Tables, is the perpendicular depth taken from the top of the upper deck beam at side, at the middle of the length of the vessel, to the top of the keel and the bottom of the frame at the middle line, except in spar and awning deck vessels, in which the depth is measured from the top of the *main* deck beams. In wooden and composite vessels the moulded depth is taken to be the perpendicular depth from the top of the upper deck beam at the side of the vessel amidships to the lower edge of the rabbet of the keel.

(*a.*) The form at the lower part of the midship transverse section of many wooden and composite vessels being of a hollow character, as in cases where thick garboard strakes are fitted, the moulded depth in such instances should be measured from the point where the line of the flat of the bottom continued cuts the keel.

6. *Freeboard.*—The moulded depth, taken as above described, is that used in the tables for ascertaining the amount of reserve buoyancy and corresponding freeboard in vessels having a wood deck, and the freeboard is measured from the top of the wood deck at side, at the middle of the length of the vessel.

(*a.*) On the same principle, in *flush-deck* vessels, other than spar or awning decked, and in vessels fitted with short poop and forecastle, having an iron upper deck, not covered with wood, the usual thickness of a wood deck should be deducted from the moulded depth of the vessel measured as above, and the amount of reserve buoyancy and corresponding freeboard taken from the column in the tables corresponding with this diminished moulded depth: *Example*—In a steamer fitted with an iron upper deck, not covered with wood, and having a moulded depth of 19 ft. 10 ins., four inches, or the usual thickness of a wood deck, must be deducted from this, leaving a depth of 19 ft. 6 ins. The freeboard of such a vessel with a coefficient of fineness of 0·76, taken from the column under 19 ft. 6 ins., is 3 ft. $8\frac{1}{2}$ ins., which should be measured from the top of the iron upper deck.

(*b.*) In spar-deck vessels having iron spar decks, and in awning-deck vessels having iron main decks, the freeboard required by the Tables should be measured as if those decks were wood covered. Also in vessels where $\frac{7}{10}$ths, or more, of the main deck is covered by substantial erections, the freeboard found from the Tables should be measured amidships from a wood deck, whether the deck be of wood or iron. In applying this principle to vessels having shorter lengths of substantial enclosed erections the reduction in freeboard in consideration of its being measured from the iron deck, is to be regulated in proportion to the length of the deck covered by such erections. Thus in a vessel having erections covering $\frac{6}{10}$ths of the length, the reduction is $\frac{6}{10}$ths of $3\frac{1}{2}$ inches, or 2 inches.*

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* *Page* 12, *para.* 6, *sub-para.* (*b.*), *to read as follows*:—

Sub-Para. (*b.*) should be read as follows:—(*b.*) In spar-decked vessels having iron spar decks, and in awning-decked vessels having iron main decks, the freeboard by the Tables should be calculated as if those decks were wood covered, *i.e.*, the ordinary thickness of a wood deck, less the thickness of the stringer plate, should be deducted from the freeboard, also in vessels where $\frac{7}{10}$ or more of the main deck is covered by substantial enclosed erections, the freeboard found from the Tables should be measured amidships from a wood deck, or, if the deck is of iron, it should be measured from the iron deck, and the ordinary thickness of a wood deck, less the thickness of the stringer plate, should in that case be deducted from the freeboard. The remainder of the paragraph should be read as printed. N.B.—When the deductions referred to in this sub-para. (*b.*) are allowed, he moulded depth is not to be reduced as per sub-para. (*a.*) para. 6.

7. For vessels which trim very much by the stern, through the engines being fitted aft, the freeboard, as ascertained from the Tables if set off amidships would not cut off the amount of surplus buoyancy deemed necessary, and in such cases the suitable freeboard amidships could only be determined after full information is obtained regarding the vessel's trim.

8. The following example will illustrate the *general* application of the Tables :—

In a steamer of the following dimensions, viz., length 204 ft.; breadth extreme, 29 ft.; depth of hold 16·0 ft.; registered tonnage under deck, 682 tons; and *moulded* depth, 17·0 ft., the under deck capacity in cubic feet is 68,200; by dividing this by 94,656, that is, the product of the length, breadth, and depth of hold, the quotient is 0·72, or the coefficient of fineness.

If we now refer to Table A at 17·0 ft. moulded depth, and trace the line opposite the coefficient 0·72 to the column corresponding with this depth, it is found that the winter freeboard given for a *first-class steam vessel without erections*, whose length is twelve times the moulded depth, is 2 ft. 11 ins., corresponding with a reserve buoyancy of 25 per cent. of the total bulk.

9. *Vessels of Extreme Proportions.*—For vessels whose length is greater or less than that of the vessel of the same moulded depth for which the Tables are framed, the freeboard should be increased or diminished as specified in the footnote to the Tables. Thus, if the vessel in the example clause 8 were 224 ft. long, the winter freeboard required would be 2 ft. 11 ins. plus 2 ins. or 3 ft. 1 in. For steam vessels with top-gallant forecastles, having long poops or raised quarter decks connected with bridge-houses, the whole extending over $\frac{6}{10}$ths, or more, of the length of the vessel, the correction for length should be one-half that specified in Tables A.*

10. *Breadth and Depth.*—In framing the Tables it has been assumed that the relation between the breadth and depth is such as to ensure safety at sea with the freeboard assigned when the vessel is laden with homogeneous cargo; for vessels of less relative

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* *Page* 13, *para.* 9 *is to be read with the following additional words, viz.* :—
Para. 9.—If the erections are at all under $\frac{6}{10}$ of the vessel's length, the entire correction for length as given in the Tables is to be applied.

breadth, the freeboard should be so increased as to provide a sufficient range of stability, or other means adopted to secure the same.

11. *Erections on Deck.*—For steam vessels with topgallant forecastles having long poops, or raised quarter decks connected with bridge-houses, covering in the engine and boiler openings, the latter being entered from the top, and having an efficiently constructed iron bulkhead at the fore end, a deduction may be made from the reserve buoyancy given in the Tables, according to the following scale:—

(*a.*) When the combined length of the poop, or raised quarter-deck, bridge-house, and top-gallant forecastle is—

$\frac{9}{10}$ths of the length of the vessel, deduct 85 per cent. of the reduction in the reserve buoyancy allowed for a complete awning deck, or $\frac{85}{100}$ths of the difference between freeboards in Tables A (after correction for sheer), and Tables C.

$\frac{8}{10}$ths of the length of the vessel, deduct 75 per cent. of the reduction in the reserve buoyancy allowed for a complete awning deck, or $\frac{75}{100}$ths of the difference between freeboards in Tables A (after correction for sheer), and Tables C.

$\frac{7}{10}$ths of the length of the vessel, deduct 63 per cent. of the reduction in the reserve buoyancy allowed for a complete awning deck, or $\frac{63}{100}$ths of the difference between freeboards in Tables A (after correction for sheer), and Tables C.

$\frac{6}{10}$ths of the length of the vessel, deduct 50 per cent. of the reduction in the reserve buoyancy allowed for a complete awning deck, or $\frac{50}{100}$ths of the difference between freeboards in Tables A (after correction for sheer), and Tables C.*

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* *Page* 14, *para.* 11, *is to be read with the following additional words, viz.*:—

Sub-para. (*a.*), *para.* 11.—The difference will not be affected by correction for length, as the allowance will be practically the same in both Tables.

A proportionate allowance may be made for erections having a combined length of $\frac{95}{100}$, in which case the reduction in freeboard will be $\frac{90}{100}$ of the difference between freeboards in Tables A. (after correction for sheer) and Tables C.

When the engine and boiler openings are protected only by a long raised quarter-deck, a less reduction in freeboard will be allowed.*

(*b.*) For intermediate lengths of erections the amount of the reduction in freeboard should be ascertained by interpolation.

(*c.*) The above scale of allowance is prepared for vessels having long poops or raised quarter decks 4 ft. high or above. For raised quarter decks of less height, extending over four-tenths of the length, and forming an integral portion of the vessel, the amount of the allowance should be diminished, as shown in the following table:—

Height of raised Quarter Deck.	Moulded Depth of Vessel in Feet.						
	ft. in. 10 0	ft. in. 12 0	ft. in. 14 0	ft. in. 16 0	ft. in. 18 0	ft. in. 20 0	ft. in. 22 0
ft. in.	ins.	ins.	ins.	ins.	ins.	ins.	ins.
3 6	—	—	½	½	½	¾	¾
3 0	½	¾	1	1	1¼	1½	1¾
2 6	1	1¼	1½	1¾	2	2½	3
2 0	1½	1¾	2¼	2¾	—	—	—
1 6	2	2½	3	—	—	—	—

(*d.*) For shorter lengths of raised quarter-deck a proportionate increase should be made.

(*e.*) It is to be understood in the application of this scale of allowance for erections on deck to vessels with long poops or with raised quarter-decks, and bridge-houses combined, that the deduction is a maximum deduction, applicable only to vessels of these types in which the erections are of a most substantial character, the deck openings most effectually protected, and the crew are either berthed in the bridge house, or the arrangements to enable them to get backwards and forwards from their quarters are of a satisfactory character. For other vessels of the same class the amount of the deduction should be fixed only after a careful survey. Also such vessels when employed in the Atlantic trade will require to have specially provided greater freeboard than that given in the Tables.*

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* *Page* 15, *para.* 11, *at the end of sub-para.* (*a.*), *after line* 3, *the following additional words are to be read, viz.:—*

The engine and boiler openings, if protected only by a raised quarter-deck will require an addition in freeboard, varying from 1 inch in vessels of Ft. 15 moulded depth to two inches in vessels of Ft. 20 moulded depth.

If with a small bridge-house in front of but not covering the openings an addition of half the above amount.

(*f.*) A sufficient number of clearing ports, as large as practicable, and with shutters properly hung, should be formed in the bulwarks of these vessels, between the forecastle and the bridge-house for the purpose of speedily clearing this part of the deck of water.†

12. When the erections on a vessel consist of a top-gallant forecastle, a short poop having an efficient bulkhead, and bridge-house disconnected, the latter in steamers covering the engine and boiler openings, and being efficiently enclosed with an iron bulkhead at each end, a deduction may be made from the

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* *Page* 16, *para.* 11, *sub-para.* (*e.*), *is to be read with the following additional words, viz.* :—

Sub-para. (*e.*)—If the crew are not berthed in the bridge-house, and the arrangements to enable them to get backwards and forwards from their quarters are not satisfactory, an addition shall be made to the freeboard of one per cent. of the moulded depth of the ship.

The additional freeboard for North Atlantic winter over and above that given in the Tables is to be as follows :—

Length of ship	180	feet	5	inches.
„	200	„	5½	„
„	220	„	6	„
„	240	„	6½	„
„	260	„	7	„
„	280	„	7½	„
„	300	„	8	„

† *Page* 16, *para.* 11, *sub-para.* (*f.*), *is to be read with the following additional words, viz.* :—

Sub-para. (*f.*)—The minimum freeing port area is to be one square foot for each three feet in length of the bulwarks in the well, and ⅔ of this is to be in the afterpart of the well, if the freeing port area is less than that stated above, an addition is to be made to the freeboard of one per cent. of the moulded depth of the ship.

reserve buoyancy given in the Tables according to the following scale:—*

(*a.*) When the combined length of the erections is—

$\frac{5}{10}$ths of the length of the vessel, deduct 40 per cent. of the reduction in reserve buoyancy allowed for a complete awning deck or $\frac{2}{5}$th of the difference between the freeboards in Tables A (after correction for sheer and length) and Tables C (after correction for length).

$\frac{4}{10}$ths of the length of the vessel, deduct 33 per cent. of the reduction in reserve buoyancy allowed for a complete awning deck or $\frac{1}{3}$rd of the difference between the freeboards in Tables A (after correction for sheer and length) and Tables C (after correction for length).

13. When the erections on a vessel consist of a top-gallant forecastle and bridge-house only, the latter in steamers covering the engine and boiler openings, and being efficiently enclosed with an iron bulkhead at each end, a deduction may be made from the reserve buoyancy given in the Tables according to the following scale:—

(*a.*) When the combined length of the erections is—

$\frac{4}{10}$ths of the length of the vessel, deduct 30 per cent. of the reduction in reserve buoyancy allowed for a complete awning deck or $\frac{3}{10}$th of the difference between the freeboards in Tables A (after correction for sheer and length) and Tables C (after correction for length).

$\frac{3}{10}$ths of the length of the vessel, deduct 25 per cent. of the reduction in reserve buoyancy allowed for a complete awning deck or $\frac{1}{4}$th of the difference between the freeboards in Tables A (after correction for sheer and length) and Tables C (after correction for length).†

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* *Page* 17, *para.* 12, *is to be read with the following additional words, viz.* :—

Para. 12.—The maximum length of erections for which deductions are to be made is $\frac{7}{10}$, for which allow a deduction of $\frac{6}{10}$, the difference of the freeboards, and for $\frac{6}{10}$ allow $\frac{5}{10}$ the difference.

In the case of vessels having only one deck laid, sub-paras. (*e.*) and (*f.*) of the preceding paragraph are to apply.

† *Page* 17, *para.* 13, *is to be read with the following additional words, viz.* :—

Para. 13.—When the combined length of the top-gallant forecastle and bridge-house is $\frac{5}{10}$, a deduction from the freeboard may be made of $\frac{37}{100}$, and this is the maximum deduction for this type of vessel.

14. When the erections on a vessel consist of a short poop and top-gallant forecastle only, the former enclosed at the fore-end with an efficient bulkhead, the deduction from the reserve buoyancy given in the tables should be according to the following scale:—

(*a.*) When the combined length of the erections is—

$\frac{3}{8}$ths of the length of the vessel, deduct 8 per cent. of the reserve buoyancy or 10 per cent. of the freeboard required for the vessel flush decked after correction for length;

$\frac{2}{8}$ths of the length of the vessel, deduct 6 per cent. of the reserve buoyancy or 8 per cent. of the freeboard required for the vessel flush decked after correction for length;

and so on in proportion.

15. When a vessel is fitted with a topgallant forecastle only, the reduction in reserve buoyancy should be one-half that prescribed by the previous paragraph for the case where, in addition to the forecastle, the vessel is fitted with a poop of the same length.

16. *Sheer.*—The Tables are framed for vessels having a mean sheer of deck *measured at the side*, as shown in the following Table.

In all the rules governing the deductions to be made from the freeboard it is to be understood as follows:—When the top-gallant forecastle is not closed by an efficient bulkhead at the after end the length is never to be estimated at a greater full value than one-eighth the length of the ship, but any extension beyond this not exceeding one-eighth the length of the ship may be estimated at $\frac{1}{2}$ the value. No length in excess of this is to be allowed for. For instance, a vessel 240 ft. long has an open forecastle $\frac{1}{4}$ the length of the ship or 60 ft., its value for deductions is 30 + 15 = Ft. 45. When the top-gallant forecastle has an efficient bulkhead with an elongation abaft that bulkhead not enclosed at the after end, the full value of the closed-in portion is to be estimated either as one-eighth the length of the ship or the entire length of the enclosed portion whichever may be the greatest.

Open Bridge-houses.—When the bridge-house extends from side to side of the ship its value for deductions must be considered on its merits, which will depend upon the security of all deck openings, doors, bunker lids, or otherwise.

Where these are all properly protected and the alley-ways are open at both ends $\frac{1}{2}$ the length may be estimated as the value for deductions. Where in addition the fore end is enclosed by an efficient bulkhead $\frac{3}{4}$ the length may be estimated as the value for deductions.

—	Length over which Sheer is measured.						
	100	150	200	250	300	350	400
	Mean Sheer in Inches over the Length specified.						
Flush-deck vessels.—Sheer to be measured abreast stem and sternpost.	20	25	30	35	40	45	50
Vessels having short poops and forecastles.—Sheer to be measured at points distant ⅛th the length of the vessel from each end.	14	18	22	26	30	34	38
Vessels having short forecastles only.—Sheer to be measured abreast the sternpost and at a point distant ⅛th the length from the stem.	14½	18½	23	27	31	35½	40

(*a.*) In flush-deck vessels, and in vessels to which clauses 11 and 12 apply, when the sheer of deck is greater or less than the above, *and is of a gradual character*, divide the difference in inches between it and the mean sheer provided for by 4, and the result in inches is the amount by which the freeboard amidships should be diminished or increased according as the sheer is greater or less.*

(*b.*) In vessels having short poops and forecastles, and in those having short forecastles only, the freeboard should be corrected in respect of the excess of or deficiency in reserve buoyancy due to variations in sheer from the standard amount over the length uncovered by substantial erections, as provided in the above Table. One-fourth the difference between the mean sheer specified and that measured as described, is approximately the amount by which the freeboard should be modified in respect of sheer.

(*c.*) The divisor 4 is to be used when the sheer is *of a gradual character*, and is not strictly applicable either to those cases in which the sheer is suddenly increased at the bow or stern, or to those in which it does not maintain its normal rate of increase to the ends of the vessel.

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* *Page* 19, *para.* 16, *sub-para.* (*a.*), *is to be read with the following additional words, viz.:—*

Para. 16, *sub-para.* (*a.*)—Surveyors should note that clauses 11 and 12 apply either to vessels of the ordinary well-decked type or to vessels having a poop and forecastle with a disconnected bridge-house.

(*d.*) In all cases the rise in sheer forward and aft is measured with reference to the deck at the middle of the length, and where the lowest point of the sheer is abaft the middle of the length, one-half of the difference between the sheer amidships and the lowest point, should be added to the freeboard specified in the Tables for flush-deck vessels, and for vessels having short poops and forecastles only.

(*e.*) Where, as in some instances, vessels fitted with long poops or raised quarter decks connected with bridge houses have the deck line rising rapidly from amidships to the front of the bridge, and from that point onwards gradually approaching the normal sheer line, the freeboard may be slightly modified in consideration of the increase of height of deck in the "well."

(*f.*) In flush-deck vessels and in vessels having short poops and forecastles the excess of sheer for which an allowance is made shall not exceed one-half the total standard mean sheer for the size of ship.*

(*g.*) No decrease should be made in the freeboard of spar and awning deck vessels, in respect of excess of sheer.

17. *Round of Beam.*—In calculating the reserve of buoyancy, an allowance has been made of one-quarter of an inch for every foot of the length of the midship beam for the round up. When the round of the beam in flush-decked vessels is greater or less than given by this rule, divide the difference in inches by 2, and diminish or increase the freeboard by this amount. For vessels with erections on deck the amount of the allowance should depend on the extent of the main deck uncovered. This rule for round of beam does not apply to spar or awning deck vessels.

18. As a general illustration of the way in which the Tables should be used in modifying the freeboard on account of erections

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Page 20, *para.* 16, *sub-para.* (*f.*), *is to be read with the following additional words, viz.* :—

Sub-para. (*f.*)—In flush-deck vessels the total standard mean sheer means the sheer measured at the stem and stern-post. In vessels having poops and forecastles, it means the sheer measured at points distant one-eighth of the vessel's length from stem and stern-post.

on deck, extreme proportions and variations in sheer, the following may be taken as an example.

A vessel is 234 ft. long, 29 ft. broad, and has a moulded depth of 17·0 ft., the coefficient of fineness being ·72. Suppose the vessel to have a poop and bridge house of the united length of 121 ft., and a forecastle 20 ft. in length, and let the sheer forward, measured at the side, be 4 ft. 6 ins., and aft 2 ft. 1 in.

	Ft.	in.
Freeboard by Tables A if of the normal length, without erections, and with the normal amount of sheer - - - - - -	2	11
The mean sheer by rule is 33·4 ins., or 6 ins. less than that in the vessel, and the reduction in freeboard is 6 ins. divided by 4 - - -	0	1½
Freeboard of vessel without erections and with 39½ ins. mean sheer - - - -	2	9½
Freeboard by Tables C as awning-decked - -	1	4½
Difference -	1	5

The combined length of the erections is $\frac{141}{234}$ths or $\frac{6}{10}$ths of the length of the vessel, and the allowance for erections under clause 11 will be therefore $\frac{5}{10}$ths of 17 ins., or 8½ ins.

We have therefore—	Deduct. in.
Amount deducted from freeboard for excess of sheer - - - - - -	1½
Amount deducted from the freeboard for erections -	8½
Amount deducted if vessel be fitted with an uncovered iron main deck (clause 6) = $\frac{6}{10} \times 3\frac{1}{2}$ -	2
	12
The length being 30 ft. in excess of that for which the Tables are framed, the addition to the freeboard in respect of the same is one-half of $\frac{30}{20}$ths of 2 ins., or - - - -	1½
	10½*

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* *Page 21, after line 34, are to be read the following additional words, viz.:*— $\frac{30}{20}$ of 2 ins. should read $\frac{30}{10}$ of 1 inch. The original draft of the Tables gave differences for 20 ft. of length instead of 10 ft., as at present.

That is 10½ ins. to be deducted from 2 ft. 11 ins., leaving a winter freeboard of 2 ft. 0½ in.

Corresponding summer freeboard 1 ft. 10½ ins.

19. Vessels loaded in fresh water may have less freeboard than that given in the several Tables, according to the following scale:—

Moulded Depth in Feet.	Reduction in Freeboard.	
	Vessels without erections on Deck.	Spar and Awning Deck Vessels.
	ins.	ins.
9 and under 11 - - -	2	—
11 „ 13 - - -	2½	—
13 „ 16	3	3½
16 „ 19 - - -	3½	4
19 „ 22 - - -	4	4½
22 „ 25 - - -	4½	5
25 „ 28 - - -	5	5½
28 „ 31 - - -	5½	6
31 „ 34 - -	6	6½

MEMO.—The weight of a cubic foot of salt water is taken, in the above Table, to be 64 lbs., and that of fresh water 62·5 lbs.

TABLES A.

TABLES of FREEBOARD for FIRST-CLASS CARGO-CARRYING STEAM VESSELS not having SPAR OR AWNING DECKS.

(*For allowances admitted in vessels having erections on deck, see "Explanation."*)

TABLE A.

CARGO-CARRYING STEAM VESSELS NOT HAVING SPAR OR AWNING DECKS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY.—(*Winter.*)								
	22·0	22·2	22·4	22·6	22·8	23·0	23·2	23·4	
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Deck at Side.								
	Moulded Depth and Length.								
	ft. in. 10 0 31.62	ft. in. 10 6	ft. in. 11 0	ft. in. 11 6	ft. in. 12 0	ft. in. 12 6	ft. in. 13 0	ft. in. 13 6	
	ft. 120 1314	ft. 126	ft. 132 1517	ft. 138	ft. 144	ft. 150 2177	ft. 156	ft. 162	
	1314 ft. in.	ft. in.	1517 ft. in.	1727 ft. in.	1727 ft. in.	ft. in.	1947 ft. in.	ft. in.	
·8794 ·68 879	1 4	1 5	1 6	1 7½	1 8½	1 9½	1 11	2 0	8794
~~·8965~~ ·70 888	1 4	1 5	1 6	1 7½	1 8½	1 9½	1 11	2 0½	8879
·8963. ·72 896	1 4½	1 5½	1 6½	1 8	1 9	1 10	1 11½	2 1	8963
·74 905	1 4½	1 5½	1 6½	1 8	1 9	1 10	1 11½	2 1	9045
·9126 ·76 913	1 5	1 6	1 7	1 8½	1 9½	1 10½	2 0	2 1	9126
·78 921	1 5	1 6	1 7	1 8½	1 9½	1 11	2 0½	2 2	9205
·9283 ·80 928	1 5½	1 6½	1 7½	1 9	1 10	1 11½	2 1	2 2½	9283
·82 936	1 5½	1 6½	1 7½	1 9	1 10	1 11½	2 1	2 2½	9360
Correction in inches for a change of 10 ft. in the length.	31.62 ·8	·9	36.48 ·9	·9	41.57 ·9	·9	46.85 ·9	·9	
Deduction in inches for Summer Voyages.*	1	1	1	1	1	1	1	1½	

* The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months.

* *Page 23, Tables A.—The following additional words are to be read after "Voyages" in line 5 from bottom of page :—*

In the case of the small vessels, in Table A., page 23, the addition to the freeboard for North Atlantic winter will have to be specially considered, but is never to be less than 3 inches.

TABLE A.—*continued.*

CARGO-CARRYING STEAM VESSELS NOT HAVING SPAR OR AWNING DECKS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST CLASS SEA-GOING IRON AND STEEL STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY.—(*Winter.*)					
	23·6	23·8	24·0	24·2	24·5	24·7
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Deck at Side.					
	Moulded Depth and Length.					
	ft. in. 14 0	ft. in. 14 6	ft. in. 15 0	ft. in. 15 6	ft. in. 16 0	ft. in. 16 6
	ft. 168	ft. 174	ft. 180	ft. 186	ft. 192	ft. 198
	2177 ft. in.	ft. in.	2415 ft. in.	ft. in.	2659 ft. in.	ft. in.
·68	2 1½	2 3	2 4	2 5½	2 7	2 8½
·70	2 1½	2 3	2 4½	2 6	2 7½	2 9
·72	2 2	2 3½	2 5	2 6½	2 8	2 9½
·74	2 2½	2 4	2 5½	2 7	2 8½	2 10
·76	2 3	2 4½	2 6	2 7½	2 9	2 10½
·78	2 3	2 4½	2 6	2 7½	2 9	2 11
·80	2 3½	2 5	2 6½	2 8	2 9½	2 11½
·82	2 4	2 5½	2 7	2 8½	2 10	3 0
Correction in inches for a change of 10 ft. in the length.	52.37 1·0	1·0	58.39 1·0	1·0	64 1·0	1·0
Deduction in inches for Summer Voyages.	1½	1½	1½	1½	1½	2
Addition in inches for Winter. North Atlantic.	3	3	3	3	3	3

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive.

TABLE A.—*continued.*

CARGO-CARRYING STEAM VESSELS NOT HAVING SPAR OR AWNING DECKS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY. (*Winter.*)				
	25·0	25·2	25·5	25·7	26·0
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Deck at Side.				
	Moulded Depth and Length.				
	ft. in. 17 0	ft. in. 17 6	ft. in. 18 0	ft. in. 18—6	ft. in. 19 0
	ft. 204	ft. 210	ft. 216	ft. 222	ft. 228
	2913		3174		3442
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·68	2 10	2 11½	3 1	3 2½	3 4
·70	2 10½	3 0	3 1½	3 3	3 4½
·72	2 11	3 0½	3 2	3 3½	3 5½
·74	2 11½	3 1	3 2½	3 4	3 6
76	3 0	3 1½	3 3	3 5	3 6½
·78	3 0½	3 2	3 4	3 5½	3 7½
·80	3 1	3 2½	3 4½	3 6	3 8
·82	3 1½	3 3	3 5	3 6½	3 8½
Correction in inches for a change of 10 ft. in the length.	70.09 1·1	1·1	76.35 1·1	1·1	82.8 1·1
Deduction in inches for Summer Voyages.	2	2	2	2	2
Addition in inches for Winter. North Atlantic.	3	3	3	3½	3½

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive.

TABLE A.—*continued.*

CARGO-CARRYING STEAM VESSELS NOT HAVING SPAR OR AWNING DECKS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY.—(*Winter.*)					
	29·5	29·8	30·1	30·4	30·8	31·1
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Deck at Side.					
	Moulded Depth and Length.					
	ft. in. 25 6	ft. in. 26 0	ft. in. 26 6	ft. in. 27 0	ft. in. 27 6	ft. in. 28 0
	ft. 306	ft. 312	ft. 318	ft. 324	ft. 330	ft. 336
		5510		5832		6158
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·68	5 5½	5 8	5 10	6 0½	6 3	6 5½
·70	5 6	5 8½	5 10½	6 1	6 3½	6 6½
·72	5 7	5 9½	5 11½	6 2	6 4½	6 7½
·74	5 7½	5 10	6 0½	6 3	6 5½	6 8½
·76	5 8½	5 11	6 1½	6 4	6 6½	6 9½
·78	5 9	5 11½	6 2	6 4½	6 7	6 10
·80	5 10	6 0½	6 3	6 5½	6 8	6 11
·82	5 11	6 1½	6 4	6 6½	6 9	7 0
Correction in inches for a change of 10 ft. in the length.	1·3	132.6 1·4	1·4	140.35 1·4	1·4	148.2 1·4
Deduction in inches for Summer Voyages.	3½	3½	3½	4	4	4
Addition in inches for Winter. North Atlantic.	4½	4½	4½	4½	4½	5

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE A.—*continued.*

CARGO-CARRYING STEAM VESSELS NOT HAVING SPAR OR AWNING DECKS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY.—(*Winter.*)					
	31·5	31·8	32·2	32·5	32·8	33·2
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Deck at Side.					
	Moulded Depth and Length.					
	ft. in. 28 6	ft. in. 29 0	ft. in. 29 6	ft. in. 30 0	ft. in. 30 6	ft. in. 31 0
	ft. 342	ft. 348	ft. 354	ft. 360	ft. 366	ft. 372
		6491		6830		7175
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·68	6 8	6 10½	7 1	7 3½	7 6½	7 9
·70	6 9	7 0	7 2½	7 5	7 8	7 10½
·72	6 10	7 1	7 3½	7 6	7 9	7 11½
·74	6 11	7 2	7 4½	7 7	7 10	8 0½
·76	7 0	7 3	7 5½	7 8	7 11	8 1½
·78	7 1	7 4	7 7	7 9½	8 0½	8 3
·80	7 2	7 5	7 8	7 10½	8 1½	8 4
·82	7 3	7 6	7 9	7 11½	8 2½	8 5
Correction in inches for a change of 10 ft. in the length.	1·5	156.2 1·5	1·5	164.3 1·5	1·5	172.6 1·6
Deduction in inches for Summer Voyages.	4	4½	4½	4½	5	5
Addition in inches for Winter. North Atlantic.	5	5	5	5	5½	5½

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognized summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE A.—*continued.*

CARGO-CARRYING STEAM VESSELS NOT HAVING SPAR OR AWNING DECKS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY.—(*Winter.*)					
	33·5	33·8	34·1	34·4	34·7	35·0
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Deck at Side.					
	Moulded Depth and Length.					
	ft. in. 31 6	ft. in. 32 0	ft. in. 32 6	ft. in. 33 0	ft. in. 33 6	ft. in. 34 0
	ft. 378	ft. 384	ft. 390	ft. 396	ft. 402	ft. 408
	ft. in.	7524 ft. in.	ft. in.	7880 ft. in.	ft. in.	8441 ft. in.
·68	8 0	8 2½	8 5	8 7½	8 10½	9 1
·70	8 1½	8 4	8 6½	8 9	9 0	9 2½
·72	8 2½	8 5	8 7½	8 10	9 1	9 3½
·74	8 3½	8 6	8 9	8 11½	9 2½	9 5
·76	8 4½	8 7	8 10	9 0½	9 3½	9 6
96 ·78	8 6	8 8½	8 11½	9 2	9 5	9 7½
·80	8 7	8 9½	9 0½	9 3	9 6	9 8½
·82	8 8	8 10½	9 1½	9 4	9 7	9 10
Correction in inches for a change of 10 ft. in the length.	1·6	181.0 1·6	1·6	189.6 1·6	1·7	198.2 1·7
Deduction in inches for Summer Voyages.	5	5	5½	5½	5½	6
Addition in inches for Winter. North Atlantic.	5½	5½	6	6	6	6

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognized summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

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TABLES B.

TABLES of FREEBOARD for FIRST-CLASS CARGO-CARRYING SPAR DECK VESSELS.

TABLE B.

CARGO-CARRYING SPAR DECK VESSELS.

TABLE OF FREEBOARD TO SPAR DECK FOR FIRST-CLASS SEA-GOING SPAR DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*)* Measured from Top of Spar Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 16 0 2659	ft. in. 16 6	ft. in. 17 0 2913	ft. in. 17 6	ft. in. 18 0 3174	ft. in. 18 6
	ft. 276 4584	ft. 282	ft. 288 4887	ft. 294	ft. 300 5196	ft. 306
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·68	5 11	6 0	6 1½	6 2½	6 4	6 5½
·70	5 11½	6 0½	6 2	6 3½	6 5	6 6½
·72	6 0	6 1	6 2½	6 4	6 5½	6 7
·74	6 0½	6 1½	6 3	6 4½	6 6	6 7½
·76	6 1	6 2	6 3½	6 5	6 6½	6 8
·78	6 1½	6 2½	6 4	6 5½	6 7	6 8½
·80	6 2	6 3	6 4½	6 6	6 7½	6 9
·82	6 2½	6 3½	6 5	6 6½	6 8	6 9½
Correction in inches for a change of 10 ft. in the length.	1·0	1·0	1·0	1·0	1·0	1·0
Deduction in inches for Summer Voyages.	2½	2½	3	3	3	3
Addition in inches for Winter. North Atlantic.	3½	3½	4	4	4	4

* These tables apply to spar deck vessels in which the height at side between the main and spar decks is 7 ft. from top of beam to top of beam; when this height is greater or less than 7 ft. the freeboard to the spar deck will require modification.

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE B.—*continued.*

CARGO-CARRYING SPAR DECK VESSELS.

TABLE OF FREEBOARD TO SPAR DECK FOR FIRST-CLASS SEA-GOING SPAR DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*)* Measured from Top of Spar Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 19 0 3442	ft. in. 19 6	ft. in. 20 0 3717	ft. in. 20 6	ft. in. 21 0 4000	ft. in. 21 6
	ft. 312 5510	ft. 318	ft. 324 5834	ft. 330	ft. 336 6158	ft. 342
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·68	6 7½	6 9	6 11	7 0½	7 2½	7 4½
·70	6 8½	6 10	7 0	7 1½	7 3½	7 5½
·72	6 9	6 10½	7 0½	7 2	7 4	7 6
·74	6 9½	6 11	7 1	7 3	7 5	7 7
·76	6 10	6 11½	7 1½	7 3½	7 5½	7 7½
·78	6 10½	7 0	7 2	7 4	7 6	7 8
·80	6 11	7 0½	7 2½	7 4½	7 6½	7 8½
·82	6 11½	7 1	7 3	7 5	7 7	7 9
Correction in inches for a change of 10 ft. in the length.	1·1	1·1	1·1	1·1	1·1	1·2
Deduction in inches for Summer Voyages.	3½	3½	3½	4	4	4
Addition in inches for Winter. North Atlantic.	4½	4½	4½	4½	5	5

* These tables apply to spar deck vessels in which the height at side between the main and spar decks is 7 ft. from top of beam to top of beam; when this height is greater or less than 7 ft. the freeboard to the spar deck will require modification.

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE B.—*continued.*

CARGO-CARRYING SPAR DECK VESSELS.

TABLE OF FREEBOARD TO SPAR DECK FOR FIRST-CLASS SEA-GOING SPAR DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*)* Measured from Top of Spar Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 22 0 4284	ft. in. 22 6	ft. in. 23 0 4574	ft. in. 23 6	ft. in. 24 0 4587	ft. in. 24 6
	ft. 348 6491	ft. 354	ft. 360 6830	ft. 366	ft. 372 277.5	ft. 378
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·68	7 7	7 9	7 11½	8 2	8 4½	8 7
·70	7 8	7 10	8 0½	8 3	8 5½	8 8
·72	7 8½	7 10½	8 1	8 3½	8 6	8 8½
·74	7 9½	7 11½	8 2	8 4½	8 7	8 9½
·76	7 10	8 0	8 2½	6 5	8 7½	8 10
·78	7 10½	8 0½	8 3	8 5½	8 8	8 11
·80	7 11	8 1	8 3½	8 6	8 8½	8 11½
·82	7 11½	8 1½	8 4	8 7	8 9½	9 0½
Correction in inches for a change of 10 ft. in the length.	1·2	1·2	1·2	1·2	1·3	1·3
Deduction in inches for Summer Voyages.	4½	4½	4½	5	5	5
Addition in inches for Winter, North Atlantic.	5	5	5	5½	5½	5½

* These tables apply to spar deck vessels in which the height at side between the main and spar decks is 7 ft. from top of beam to top of beam; when this height is greater or less than 7 ft. the freeboard to the spar deck will require modification.

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

Table B.—*continued*

CARGO-CARRYING SPAR DECK VESSELS.

Table of Freeboard to Spar Deck for First-class Sea-going Spar Deck Steam Vessels.

(In Salt Water.)

Coefficient of Fineness.	Height of Freeboard Amidships.—(*Winter.*)* Measured from Top of Spar Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 25 0 5196	ft. in. 25 6	ft. in. 26 0 5510	ft. in. 26 6	ft. in. 27 0 5832	ft. in. 27 6
	ft. 384 7524	ft. 390	ft. 396 7880	ft. 402	ft. 408 8241	ft. 414
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·68	8 9½	9 0	9 2½	9 5½	9 8	9 11
·70	8 10½	9 1	9 3½	9 6½	9 9	10 0
·72	8 11	9 2	9 4½	9 7½	9 10	10 1
·74	9 0	9 3	9 5½	9 8½	9 11	10 2
·76	9 0½	9 3½	9 6	9 9	10 0	10 3
·78	9 1½	9 4½	9 7	9 10	10 1	10 4
·80	9 2	9 5	9 7½	9 10½	10 1½	10 4½
·82	9 3	9 6	9 8½	9 11½	10 2½	10 5½
Correction in inches for a change of 10 ft. in the length.	1·3	1·3	1·3	1·4	1·4	1·4
Deduction in inches for Summer Voyages.	5½	5½	5½	5½	6	6
Addition in inches for Winter. North Atlantic.	5½	5½	6	6	6	6

* These tables apply to spar deck vessels in which the height at side between the main and spar decks is 7 ft. from top of beam to top of beam; when this height is greater or less than 7 ft. the freeboard to the spar deck will require modification.

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE B.—*continued.*

CARGO-CARRYING SPAR DECK VESSELS.

TABLE OF FREEBOARD TO SPAR DECK FOR FIRST-CLASS SEA-GOING SPAR DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*)* Measured from Top of Spar Deck at Side.				
	Moulded Depth (to Main Deck) and Length.				
	ft. in. 28 0 6158	ft. in. 28 6	ft. in. 29 0 6491	ft. in. 29 6 6850	ft. in. 30 0 7175
	ft. 420 8608	ft. 426	ft. 432 8979	ft. 438	ft. 444 9356
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·68	10 2	10 5	10 8½	10 11½	11 3
·70	10 3	10 6	10 9½	11 0½	11 4
·72	10 4	10 7	10 10½	11 1½	11 5
·74	10 5	10 8	10 11½	11 2½	11 6
·76	10 6	10 9	11 0½	11 3½	11 7
·78	10 7	10 10	11 1½	11 4½	11 8
·80	10 7½	10 10½	11 2	11 5½	11 9
·82	10 8½	10 11½	11 3	11 6½	11 10
Correction in inches for a change of 10 ft. in the length.	1·4	1·5	1·5	1·5	1·5
Deduction in inches for Summer Voyages.	6	6	6½	6½	6½
Addition in inches for Winter. North Atlantic.	6	6	6½	6½	6½

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* These tables apply to spar deck vessels in which the height at side between the main and spar decks is 7 ft. from top of beam to top of beam; when this height is greater or less than 7 ft. the freeboard to the spar deck will require modification.

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLES C.

TABLES of FREEBOARD for FIRST-CLASS CARGO-CARRYING AWNING DECK VESSELS.

TABLE C.
CARGO-CARRYING AWNING DECK VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING AWNING DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY TO MAIN DECK.—(*Winter.*)					
	15·0	15·1	15·2	15·3	15·4	15·5
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Main Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 14 0	ft. in. 14 6	ft. in. 15 0	ft. in. 15 6	ft. in. 16 0	ft. in. 16 6
	ft. 168	ft. 174	ft. 180	ft. 186	ft. 192	ft. 198
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·66	1 0	1 0½	1 1	1 1½	1 2	1 2½
·68	1 0	1 0½	1 1	1 1½	1 2	1 2½
·70	1 0½	1 1	1 1½	1 2	1 2½	1 3
·72	1 0½	1 1	1 1½	1 2	1 3	1 3½
·74	1 1	1 1½	1 2	1 2½	1 3	1 3½
·76	1 1	1 1½	1 2	1 2½	1 3½	1 4
·78	1 1½	1 2	1 2½	1 3	1 4	1 4½
·80	1 1½	1 2	1 2½	1 3	1 4	1 4½
Correction in inches for a change of 10 ft. in the length.	·5	·5	·5	·5	·5	·5
Deduction in inches for Summer Voyages.	2	2	2	2	2	2½
Addition in inches for Winter. North Atlantic.	3	3	3	3	3	3½

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognized summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE C.—*continued.*

CARGO-CARRYING AWNING DECK VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING AWNING DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY TO MAIN DECK.—(*Winter.*)					
	15·7	15·8	16·0	16·2	16·4	16·7
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Main Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 17 0	ft. in. 17 6	ft. in. 18 0	ft. in. 18 6	ft. in. 19 0	ft. in. 19 6
	ft. 204	ft. 210	ft. 216	ft. 222	ft. 228	ft. 234
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·66	1 3½	1 4	1 5	1 6	1 7	1 8
·68	1 3½	1 4	1 5	1 6	1 7	1 8
·70	1 4	1 4½	1 5½	1 6½	1 7½	1 8½
·72	1 4½	1 5	1 6	1 7	1 8	1 9
·74	1 4½	1 5	1 6	1 7	1 8½	1 9
·76	1 5	1 5½	1 6½	1 7½	1 8½	1 9½
·78	1 5½	1 6	1 7	1 8	1 9	1 10
·80	1 5½	1 6	1 7	1 8	1 9	1 10
Correction in inches for a change of 10 ft. in the length.	·5	·5	·5	·6	·6	·6
Deduction in inches for Summer Voyages.	2½	2½	2½	3	3	3
Addition in inches for Winter. North Atlantic.	3½	3½	3½	3½	4	4

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognized summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE C.—*continued.*

CARGO-CARRYING AWNING DECK VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING AWNING DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY TO MAIN DECK.—(*Winter.*)					
	16·9	17·2	17·4	17·7	18·0	18·3
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Main Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 20 0	ft. in. 20 6	ft. in. 21 0	ft. in. 21 6	ft. in. 22 0	ft. in. 22 6
	ft. 240	ft. 246	ft. 252	ft. 258	ft. 264	ft. 270
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·66	1 9	1 10½	1 11½	2 1	2 2	2 3½
·68	1 9	1 10½	1 11½	2 1	2 2½	2 4
·70	1 9½	1 11	2 0	2 1½	2 3	2 4½
·72	1 10	1 11½	2 0½	2 2	2 3½	2 5
·74	1 10	1 11½	2 0½	2 2	2 3½	2 5
·76	1 10½	2 0	2 1	2 2½	2 4	2 5½
·78	1 11	2 0½	2 1½	2 3	2 4½	2 6
·80	1 11½	2 1	2 2	2 3½	2 5	2 6½
Correction in inches for a change of 10 ft. in the length.	·6	·6	·6	·6	·6	·6
Deduction in inches for Summer Voyages.	3½	3½	3½	3½	4	4
Addition in inches for Winter. North Atlantic.	4	4	4	4½	4½	4½

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognized summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

Table C.—*continued.*

CARGO-CARRYING AWNING DECK VESSELS.

Table of Reserve Buoyancy and Freeboard for First-class Sea-going Awning Deck Steam Vessels.

(In Salt Water.)

Coefficient of Fineness.	Percentage Reserve Buoyancy to Main Deck.—(*Winter.*)					
	18·6	18·9	19·2	19·6	19·9	20·3
	Corresponding Height of Freeboard Amidships.—(*Winter.*) Measured from Top of Main Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 23 0	ft. in. 23 6	ft. in. 24 0	ft. in. 24 6	ft. in. 25 0	ft. in. 25 6
	ft. 276	ft. 282	ft. 288	ft. 294	ft. 300	ft. 306
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·66	2 5	2 6½	2 8	2 10	3 0	3 2
·68	2 5½	2 7	2 8½	2 10½	3 0½	3 2½
·70	2 6	2 7½	2 9	2 11	3 1	3 3
·72	2 6½	2 8	2 9½	2 11½	3 1½	3 3½
·74	2 6½	2 8	2 10	3 0	3 2	3 4
·76	2 7	2 8½	2 10½	3 0½	3 2½	3 4½
·78	2 7½	2 9	2 11	3 1	3 3	3 5
·80	2 8	2 9½	2 11½	3 1½	3 3½	3 5½
Correction in inches for a change of 10 ft. in the length.	·6	·6	·6	·7	·7	·7
Deduction in inches for Summer Voyages.	4	4½	4½	4½	5	5
Addition in inches for Winter. North Atlantic.	4½	4½	5	5	5	5

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognized summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE C.—*continued.*

CARGO-CARRYING AWNING DECK VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST CLASS SEA-GOING AWNING DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY TO MAIN DECK.—(*Winter.*)					
	20·6	21·0	21·4	21·9	22·3	22·8
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Main Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 26 0	ft. in. 26 6	ft. in. 27 0	ft. in. 27 6	ft. in. 28 0	ft. in. 28 6
	ft. 312	ft. 318	ft. 324	ft. 330	ft. 336	ft. 342
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·66	3 4	3 6½	3 9	3 11½	4 2	4 4½
·68	3 4½	3 7	3 9½	4 0	4 2½	4 5
·70	3 5	3 7½	3 10	4 0½	4 3	4 5½
·72	3 5½	3 8	3 10½	4 1	4 3½	4 6½
·74	3 6	3 8½	3 11	4 1½	4 4	4 7
·76	3 7	3 9½	4 0	4 2½	4 5	4 7½
·78	3 7½	3 10	4 0½	4 3	4 5½	4 8
·80	3 8	3 10½	4 1	4 3½	4 6	4 8½
Correction in inches for a change of 10 ft. in the length.	·7	·7	·7	·7	·7	·7
Deduction in inches for Summer Voyages.	5	5½	5½	5½	5½	6
Addition in inches for Winter. North Atlantic.	5½	5½	5½	5½	5½	6

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE C.—*continued.*

CARGO-CARRYING AWNING DECK VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING AWNING DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	Percentage Reserve Buoyancy to Main Deck.—(*Winter.*)					
	23·3	23·8	24·3	24·7	25·2	25·6
	Corresponding Height of Freeboard Amidships.—(*Winter.*) Measured from Top of Main Deck at Side.					
	Moulded Depth (to Main Deck) and Length.					
	ft. in. 29 0	ft. in. 29 6	ft. in. 30 0	ft. in. 30 6	ft. in. 31 0	ft. in. 31 6
	ft. 348	ft. 354	ft. 360	ft. 366	ft. 372	ft. 378
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·66	4 7	4 9½	5 0	5 2½	5 5½	5 8
·68	4 7½	4 10	5 1	5 3½	5 6½	5 9
·70	4 8	4 10½	5 1½	5 4	5 7	5 9½
·72	4 9	4 11½	5 2½	5 5	5 8	5 10½
·74	4 9½	5 0	5 3	5 5½	5 8½	5 11
·76	4 10	5 1	5 4	5 6½	5 9½	6 0
·78	4 10½	5 1½	5 4½	5 7	5 10	6 0½
·80	4 11	5 2	5 5	5 7½	5 10½	6 1
Correction in inches for a change of 10 ft. in the length.	·7	·8	·8	·8	·8	·8
Deduction in inches for Summer Voyages.	6	6	6	6	6	6½
Addition in inches for Winter. North Atlantic.	6	6	6	6	6	6½

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

TABLE C.—*continued.*

CARGO-CARRYING AWNING DECK VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING AWNING DECK STEAM VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY TO MAIN DECK.—(*Winter.*)				
	26·1	26·5	27·0	27·5	28·0
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS.—(*Winter.*) Measured from Top of Main Deck at Side.				
	Moulded Depth (to Main Deck) and Length.				
	ft. in. 32 0	ft. in. 32 6	ft. in. 33 0	ft. in. 33 6	ft. in. 34 0
	ft. 384	ft. 390	ft. 396	ft. 402	ft. 408
	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
·66	5 11	6 1½	6 4½	6 7	6 10
·68	6 0	6 2½	6 5½	6 8	6 11
·70	6 0½	6 3	6 6	6 8½	6 11½
·72	6 1½	6 4	6 7	6 9½	7 0½
·74	6 2	6 4½	6 7½	6 10	7 1
·76	6 3	6 5½	6 8½	6 11	7 2
·78	6 3½	6 6	6 9	6 11½	7 2½
·80	6 4	6 7	6 9½	7 0½	7 3½
Correction in inches for a change of 10 ft. in the length.	·8	·8	·8	·8	·8
Deduction in inches for Summer Voyages.	6½	6½	6½	6½	6½
Addition in inches for Winter. North Atlantic.	6½	6½	6½	6½	6½

The above reduction in freeboard for summer voyages from European and Mediterranean Ports is to be made from April to September inclusive. In other parts of the world the reduced freeboard should be used during the corresponding or recognised summer months. The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean, or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of and including Baltimore, from October to March inclusive. Double the above reduction to be allowed for voyages in the fine season in the Indian seas, between the limits of Suez and Singapore.

Tables D.

Tables of Freeboard for First-class Iron, Steel, Composite, and Wood Sailing[*] Vessels.

Table D.

SAILING VESSELS.

Table of Reserve Buoyancy and Freeboard for First-class Sea-going Iron and Steel Sailing Vessels and Composite and Wood Vessels of the Highest Class.

(In Salt Water.)

Coefficient of Fineness.			Percentage Reserve Buoyancy. (Iron Vessels.)				
			23·5	23·7	23·9	24·2	24·4
			Corresponding Height of Freeboard Amidships. Measured from Top of Deck at Side.				
Wood.	Composite.	Iron.	Moulded Depth and Length.				
			ft. in. 10 0	ft. in. 10 6	ft. in. 11 0	ft. in. 11 6	ft. in. 12 0
			ft. 100	ft. 105	ft. 110	ft. 115	ft. 120
			ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
—	—	·64	1 5½	1 6½	1 7½	1 9	1 10½
—	·64	·66	1 5½	1 6½	1 7½	1 9	1 10½
—	·66	·68	1 6	1 7	1 8	1 9½	1 11
·64	·68	·70	1 6	1 7	1 8½	1 10	1 11½
·66	·70	·72	1 6½	1 7½	1 9	1 10½	2 0
·68	·72	·74	1 6½	1 7½	1 9	1 10½	2 0
·70	·74	—	1 7	1 8	1 9½	1 11	2 0½
·72	—	—	1 7	1 8½	1 10	1 11½	2 1
Corrections in inches for a change of 10 ft. in the length.			·9	·9	·9	1·0	1·0

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[*] *Page* 43, *Table D.—The following additional words are to be read after the last line on page:—*

Table D., Page 43.

In the case of small vessels, the addition to the freeboard for North Atlantic winter will have to be specially considered, but is never to be less than 3 inches.

TABLE D.—*continued*.

SAILING VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL SAILING VESSELS AND COMPOSITE AND WOOD VESSELS OF THE HIGHEST CLASS.

(In Salt Water.)

Coefficient of Fineness.			Percentage Reserve Buoyancy. (Iron Vessels.)			
			24·6	24·9	25·1	25·3
			Corresponding Height of Freeboard Amidships. Measured from Top of Deck at Side.			
			Moulded Depth and Length.			
			ft. in. 12 6	ft in. 13 0	ft. in. 13 6	ft. in. 14 0
Wood.	Composite.	Iron.	ft. 125	ft. 130	ft. 135	ft. 140
			ft. in.	ft. in.	ft. in.	ft. in.
—	—	·64	1 11½	2 1	2 2½	2 3½
—	·64	·66	2 0	2 1½	2 3	2 4
—	·66	·68	2 0½	2 2	2 3½	2 4½
·64	·68	·70	2 1	2 2½	2 4	2 5
·66	·70	·72	2 1½	2 3	2 4½	2 5½
·68	·72	·74	2 1½	2 3	2 4½	2 6
·70	·74	—	2 2	2 3½	2 5	2 6½
·72	—	—	2 2½	2 4	2 5½	2 7
Correction in inches for a Change of 10 ft. in the length.			1·0	1·0	1·0	1·0

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* *Page* 44, *Table D.—The following additional words are to be read after last line on page :—*

Table D., Page 44.

In the case of small vessels, the addition to the freeboard for North Atlantic winter will have to be specially considered, but is never to be less than 3 inches.

TABLE D—*continued.*

SAILING VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL SAILING VESSELS AND COMPOSITE AND WOOD VESSELS OF THE HIGHEST CLASS.

(In Salt Water.)

Coefficient of Fineness.			PERCENTAGE RESERVE BUOYANCY. (Iron Vessels.)				
			25·5	25·7	26·0	26·2	26·4
			CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS. Measured from Top of Deck at Side.				
			Moulded Depth and Length.				
			ft. in. 14 6	ft. in. 15 0	ft. in. 15 6	ft. in. 16 0	ft. in. 16 6
Wood.	Composite.	Iron.	ft. 145	ft. 150	ft. 155	ft. 160	ft. 165
			ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
—	—	·64	2 5	2 6½	2 8	2 9½	2 11
—	·64	·66	2 5½	2 7	2 8½	2 10	2 11½
—	·66	·68	2 6	2 7½	2 9	2 10½	3 0
·64	·68	·70	2 6½	2 8	2 9½	2 11	3 0½
·66	·70	·72	2 7	2 8½	2 10	2 11½	3 1
·68	·72	·74	2 7½	2 9	2 10½	3 0	3 1½
·70	·74	—	2 8	2 9½	2 11	3 0½	3 2
·72	—	—	2 8½	2 10	2 11½	3 1	3 2½
Correction in inches for a change of 10 ft. in the length.			1·1	1·1	1·1	1·1	1·1
Addition in inches for Winter: North Atlantic.			3	3	3	3	3

The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of, and including Baltimore, from October to March inclusive.

TABLE D.—*continued.*

SAILING VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL SAILING VESSELS AND COMPOSITE AND WOOD VESSELS OF THE HIGHEST CLASS.

(In Salt Water.)

Coefficient of Fineness.			PERCENTAGE RESERVE BUOYANCY. (Iron Vessels.)				
			26·6	26·8	27·1	27·3	27·5
			CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS. Measured from Top of Deck at Side.				
			Moulded Depth and Length.				
Wood.	Composite.	Iron.	ft. in. 17 0	ft. in. 17 6	ft. in. 18 0	ft. in. 18 6	ft. in. 19 0
			ft. 170	ft. 175	ft. 180	ft. 185	ft. 190
			ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
—	—	·64	3 0½	3 2	3 3½	3 5	3 6½
—	·64	·66	3 1	3 2½	3 4	3 5½	3 7
—	·66	·68	3 1½	3 3	3 4½	3 6	3 7½
·64	·68	·70	3 2	3 3½	3 5	3 6½	3 8
·66	·70	·72	3 2½	3 4	3 5½	3 7½	3 9
·68	·72	·74	3 3	3 4½	3 6	3 8	3 9½
·70	·74	—	3 3½	3 5	3 6½	3 8½	3 10
·72	—	—	3 4	3 5½	3 7	3 9	3 10½
Correction in inches for a change of 10 ft. in the length.			1·1	1·1	1·1	1·1	1·2
Addition in inches for Winter. North Atlantic.			3	3½	3½	3½	3½

The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of, and including Baltimore, from October to March inclusive.

Table D.—*continued.*

SAILING VESSELS.

Table of Reserve Buoyancy and Freeboard for First-class Sea-going Iron and Steel Sailing Vessels and Composite and Wood Vessels of the Highest Class.

(In Salt Water.)

Coefficient of Fineness.			Percentage Reserve Buoyancy. (Iron Vessels.)				
			27·7	27·9	28·1	28·3	28·5
			Corresponding Height of Freeboard Amidships. Measured from Top of Deck at Side.				
			Moulded Depth and Length.				
Wood.	Composite.	Iron.	ft. in. 19 6	ft. in. 20 0	ft. in. 20 6	ft. in. 21 0	ft. in. 21 6
			ft. 195	ft. 200	ft. 205	ft. 210	ft. 215
			ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
—	—	·64	3 8	3 9½	3 11½	4 1	4 2½
—	·64	·66	3 8½	3 10	4 0	4 1½	4 3½
—	·66	·68	3 9	3 11	4 0½	4 2	4 4
·64	·68	·70	3 9½	3 11½	4 1	4 2½	4 4½
·66	·70	·72	3 10½	4 0½	4 2	4 3½	4 5½
·68	·72	·74	3 11	4 1	4 2½	4 4	4 6
·70	·74	—	3 11½	4 1½	4 3	4 5	4 6½
·72	—	—	4 0	4 2	4 3½	4 5½	4 7½
Correction in inches for a change of 10 ft. in the length.			1·2	1·2	1·2	1·2	1·2
Addition in inches for Winter. North Atlantic.			4	4	4	4	4

The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of, and including Baltimore, from October to March inclusive.

Table D.—*continued.*

SAILING VESSELS.

Table of Reserve Buoyancy and Freeboard for First-class Sea-going Iron and Steel Sailing Vessels and Composite and Wood Vessels of the Highest Class.

(In Salt Water.)

Coefficient of Fineness.			Percentage Reserve Buoyancy. (Iron Vessels.)				
			28·7	28·9	29·1	29·3	29·5
			Corresponding Height of Freeboard Amidships. Measured from Top of Deck at Side.				
			Moulded Depth and Length.				
			ft. in. 22 0	ft. in. 22 6	ft. in. 23 0	ft. in. 23 6	ft. in. 24 0
			ft. 220	ft. 225	ft. 230	ft. 235	ft. 240
Wood.	Composite.	Iron.					
			ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
—	—	·64	4 4	4 6	4 7½	4 9½	4 11½
—	·64	·66	4 5	4 7	4 8½	4 10	5 0
—	·66	·68	4 5½	4 7½	4 9	4 11	5 1
·64	·68	·70	4 6	4 8	4 9½	4 11½	5 1½
·66	·70	·72	4 7	4 9	4 10½	5 0½	5 2½
·68	·72	·74	4 7½	4 9½	4 11	5 1	5 3
·70	·74	—	4 8½	4 10½	5 0	5 2	5 4
·72	—	—	4 9	4 11	5 1	5 3	5 5
Correction in inches for a change of 10 ft. in the length.			1·2	1·2	1·3	1·3	1·3
Addition in inches for Winter. North Atlantic.			4½	4½	4½	4½	4½

The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of, and including Baltimore, from October to March inclusive.

TABLE D.—*continued.*

SAILING VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL SAILING VESSELS AND COMPOSITE AND WOOD VESSELS OF THE HIGHEST CLASS.

(In Salt Water.)

Coefficient of Fineness.			PERCENTAGE RESERVE BUOYANCY. (Iron Vessels.)					
			29·7	29·9	30·1	30·3	30·5	30·7
			CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS. Measured from Top of Deck at Side.					
			Moulded Depth and Length.					
Wood.	Composite.	Iron.	ft. in. 24 6	ft. in. 25 0	ft. in. 25 6	ft. in. 26 0	ft. in. 26 6	ft. in. 27 0
			ft. 245	ft. 250	ft. 255	ft. 260	ft. 265	ft. 270
			ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
—	—	·64	5 1½	5 3½	5 5½	5 7½	5 9½	5 11½
—	·64	·66	5 2	5 4	5 6	5 8	5 10	6 0½
—	·66	·68	5 3	5 5	5 7	5 9	5 11	6 1½
·64	·68	·70	5 3½	5 5½	5 7½	5 9½	5 11½	6 2
·66	·70	·72	5 4½	5 6½	5 8½	5 10½	6 0½	6 3
·68	·72	·74	5 5	5 7	5 9	5 11	6 1	6 3½
·70	·74	—	5 6	5 8	5 10	6 0	6 2	6 4½
·72	—	—	5 7	5 9	5 11	6 1	6 3	6 5½
Correction in inches for a change of 10 ft. in the length.			1·3	1·3	1·3	1·3	1·3	1·4
Addition in inches for Winter, North Atlantic.			5	5	5	5	5	5½

The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of, and including Baltimore, from October to March inclusive.

TABLE D.—*continued.*

SAILING VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST CLASS SEA-GOING IRON AND STEEL SAILING VESSELS.

(In Salt Water.)

Coefficient of Fineness.	Percentage Reserve Buoyancy.			
	0·9	31·2	31·4	31·7
	Corresponding Height of Freeboard Amidships. Measured from Top of Deck at Side.			
Iron.	Moulded Depth and Length.			
	ft. in. 27 6	ft. in. 28 0	ft. in. 28 6	ft. in. 29 0
	ft. 275	ft. 280	ft. 285	ft. 290
	ft. in.	ft. in.	ft. in.	ft. in.
·64	6 1½	6 4	6 6	6 8
·66	6 2½	6 5	6 7	6 9
·68	6 3½	6 5½	6 8	6 10
·70	6 4	6 6½	6 8½	6 11
·72	6 5	6 7½	6 9½	7 0
·74	6 5½	6 8	6 10	7 0½
·76	6 6½	6 9	6 11	7 1½
Correction in inches for a change of 10 ft. in the length.	1·4	1·4	1·4	1·4
Addition in inches for Winter. North Atlantic.	5½	5½	5½	5½

The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of, and including Baltimore, from October to March inclusive.

TABLE D.—*continued.*

SAILING VESSELS.

TABLE OF RESERVE BUOYANCY AND FREEBOARD FOR FIRST-CLASS SEA-GOING IRON AND STEEL SAILING VESSELS.

(In Salt Water.)

Coefficient of Fineness.	PERCENTAGE RESERVE BUOYANCY.			
	32·0	32·3	32·6	33·0
	CORRESPONDING HEIGHT OF FREEBOARD AMIDSHIPS. Measured from Top of Deck at Side.			
Iron.	Moulded Depth and Length.			
	ft. in. 29 6	ft. in. 30 0	ft. in. 30 6	ft. in. 31 0
	ft. 295	ft. 300	ft. 305	ft. 310
	ft. in.	ft. in.	ft. in.	ft. in.
·64	6 10½	7 0½	7 3	7 5
·66	6 11½	7 1½	7 4	7 6
·68	7 0½	7 2½	7 5	7 7
·70	7 1	7 3½	7 5½	7 8
·72	7 2	7 4½	7 6½	7 9
·74	7 2½	7 5	7 7	7 9½
·76	7 3½	7 6	7 8	7 10½
Correction in inches for a change of 10 ft. in the length.	1·4	1·5	1·5	1·5
Addition in inches for Winter. North Atlantic.	6	6	6	6

The additional freeboard specified for the North Atlantic trades is to apply to vessels sailing to, or from, the Mediterranean or any British or European Port, and which may sail to, or from, or call at, Ports in British North America, or eastern Ports in the United States, north of, and including Baltimore, from October to March inclusive.

TABLE giving the WEIGHT in OUNCES per CUBIC FOOT of SAMPLES of SEA and RIVER WATER taken from the PLACES enumerated below.

The weight of a cubic foot of fresh water is - - 1,000 ounces.
The weight of a cubic foot of the densest sea water on the British coast is - - - 1,025 „

Name of Port.	Dock, Harbour, or River from which Water was taken.	State of Tide.	Weight per cubic foot in Ounces.
ABERDEEN DISTRICT.			
Aberdeen	Aberdeen Harbour	—	1,015
Fraserburgh	Harbour	—	1,025
Banff	Do.	—	1,024
Lossiemouth	Do.	—	1,022
Buckie	Do.	—	1,024
Peterhead	Do.	—	1,024
Port Gordon	Do.	—	1,024
Inverness	Do.	—	1,000
BARROW DISTRICT.			
Barrow	Buccleugh Dock	—	1,0 7
Whitehaven	Queen's Dock	—	1,024
Do.	Workington (the Harbour)	High	1,000
Do.	Do. (Lonsdale Dock)	—	1,000
Do.	Maryport (Elizabeth Dock)	—	1,014
Do.	Do. (the Harbour)	High	1,005
BELFAST DISTRICT.			
Belfast	Harbour	High	1,011
BRISTOL DISTRICT.			
Bristol Channel	Avonmouth Dock	—	1,011
Do.	Portishead Dock	—	1,015
Bristol	Floating Harbour	—	1,000
Gloucester	Gloucester Docks	—	1,000
Do.	Sharpness Docks	—	1,000
Bridgwater	River Parret	—	1,009
CARDIFF DISTRICT.			
Newport	Alexandra Dock	—	1,008
Do.	Old Dock	—	1,008
Cardiff	Roath Basin	—	1,008
Do.	Penarth Basin	—	1,018
CORK DISTRICT.			
Queenstown		High	1,025
Do.		Low	1,024
Cork		High	1,000
Kinsale		High	1,024
Do.		Low	1,022
Limerick	The Quay	High	1,000
Youghal		High	1,025
Do.		Low	1,025